

Comparison of flexural strength of different composite restoratives using the three-point bending test

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*Abstract

Background: Composite is one of the restorative materials used for the posterior teeth. The strength of restorative material is important due to heavy loading on the posterior teeth.

Objective: The purpose of this study was to compare the flexural strength of three dental composites.

Methods: In this experimental study, ten specimens of each composite, including a nanocomposite Filtek Z350, a hybrid composite Filtek Z250, and a Silorane-based P90 were prepared according to the manufacturer's instructions (3M-ESPE USA) and ISO 4049. After light polymerization, the specimens were stored for 24 h in distilled water at 37° C. The specimens were subsequently blot dried and their flexural strength was measured using the three-point bending test by an Instron Universal testing machine. Data were analyzed using repeated measures ANOVA and Mauchly's test.

Findings: Mean Flexural strength of the Z350 composite and Z250 composite was 0.084 and 0.024 MP, respectively and the difference was statistically significant. Flexural strength of the Z350 composite and Z250 composite was not significantly different from the P90 composite (0.049 MP).

Conclusion: With regards to the results, it seems that the Z350 composite is more appropriate for posterior teeth restoration due to its higher flexural strength.

Keywords: Flexural Strength, Dental Composite, three-point Bending Test

Citation: Saffarpour M, Jaffari M, Mohammadi M, Beigi M. Comparison of flexural strength of different composite restoratives using the three-point bending test. J Qazvin Univ Med Sci. 2016; 19 (6): 50-56.

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Received: 19 Feb 2015

Accepted: 5 Sep 2015